

NON-PUBLIC?: N
ACCESSION #: 9310190119
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Grand Gulf Nuclear Station PAGE: 1 OF 04

DOCKET NUMBER: 05000416

TITLE: Reactor Scram Due to Actuation and Injection of High
Pressure Core Spray
EVENT DATE: 09/13/93 LER #: 93-008-00 REPORT DATE: 10/13/93

OTHER FACILITIES INVOLVED: N/A DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:
50.73(a)(2)(iv)

OTHER: Tech Spec 3.5.1.h Special Report

LICENSEE CONTACT FOR THIS LER:
NAME: Riley Ruffin/Licensing Specialist TELEPHONE: (601) 437-2167

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On September 13, 1993 during normal plant operations, an actuation of the High Pressure Core Spray system occurred. Reactor vessel water level increased to high water level scram setpoint. Reactor water level decreased to approximately -36 inches and was restored by the Feedwater system. The plant was stabilized in accordance with plant procedures. A subsequent investigation revealed that the HPCS initiation was the result of low water level signals from the C and G channels of HPCS level instrumentation. It is believed that flow impingement as a result of a displaced jet pump mixer caused perturbations in the HPCS level instrumentation. The unit was required to shut down due to an inoperable jet pump. Additional information associated with the jet pump malfunction will be submitted in an upcoming submittal. This report also serves as a Special Report pursuant to GGNS Technical Specification

3.5.1.h. The HPCS actuation and injection did not degrade the capability of any safety related plant system. Therefore the health and safety of the public were not compromised as a result of this occurrence.

END OF ABSTRACT

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A. Reportable Occurrence

An actuation and injection of the High Pressure Core Spray system BG! (HPCS) occurred during normal plant operations. The invalid actuation resulted in an increase in reactor vessel water level which caused a Reactor Protection system JC! (RPS) actuation. These occurrences are reportable pursuant to 10 CFR 50.73(a)(2)(iv). This submittal also serves as a special report which is being submitted in accordance with Technical Specification 3.5.1.h to report the injection of an ECCS.

B. Initial Condition

The reactor was in OPERATIONAL CONDITION 1. Indicated reactor power was approximately 100 percent. Reactor coolant temperature was approximately 530 degrees F.

C. Description of Occurrence

On September 13, 1993 at 1512 hours, a HPCS actuation occurred. The HPCS pump injected for approximately 30 seconds at an approximate flow rate of 4000 gpm.

Operations personnel verified that HPCS was injecting; then manually closed the injection valve to halt the injection. However, the valve did not isolate the flowpath prior to vessel level reaching its high water level scram setpoint. This resulted in an automatic RPS actuation. Vessel level decreased to approximately - 36 inches as indicated by control room indications and was restored by the Feedwater System SJ!.

Following the scram, the HPCS pump was placed on minimum flow; then secured. The plant was stabilized in accordance with plant procedures. The Feedwater System was in service to maintain vessel inventory. Vessel level stabilized at approximately 20 inches as indicated by control room instrumentation. Plant personnel removed the HPCS system from service in order to investigate the actuation.

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D. Apparent Cause

An investigation was initiated to determine the cause of the HPCS actuation. It was determined that the initiation occurred as a result of HPCS low water level channels C and G generating an erroneous level signal. The initial investigation did not determine the cause of the erroneous level signal.

Upon initial restart of the unit following the scram, abnormalities were observed in Reactor Recirculation system AD! jet pump flows. During a subsequent restart, core flow was increased to approximately 77 percent. At that time, plant personnel observed level oscillations on control room instrumentation. Further observation revealed that the C and G channels of HPCS low water level instrumentation were oscillating approximately 10 to 15 inches; while the other channels were stable.

The investigation of the jet pump malfunction revealed that HPCS low water level channels C and G instrument taps were in relatively close proximity to the suspected malfunctioning jet pump. It is believed that flow impingement as a result of a displaced jet pump mixer caused perturbations in the HPCS level instrumentation.

E. Corrective Actions

Based on the results of the subsequent investigations, no corrective actions are necessary for the HPCS actuation.

The plant was required to shutdown in accordance with GGNS Technical Specification 3.4.1.2 as a result of the jet pump inoperability. The completion of this shutdown is reportable pursuant to 10 CFR 50.73. Therefore, additional information concerning the jet pump malfunction will be submitted in an upcoming submittal.

F. Safety Assessment

The actuation of the HPCS system did not result in adverse consequences or degradation of the capability of plant safety systems. Reactor vessel level, as a result of this occurrence, decreased to approximately -36 inches as indicated by 1B21R623B. The level remained at least 130 inches above the top of active fuel during this occurrence. The health and safety of the public were not compromised as a result of this occurrence.

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G. Additional Information

HPCS injected for approximately 30 seconds at a flow rate of 4000 gpm. The temperature of the injection source water was 126 degrees F. The vessel was at 1022 psig at the time of injection. This is the eleventh (# 11) actuation cycle of the HPCS system at power that has been experienced at GGNS. The current value of the nozzle usage factor is still within 0.70.

This report is also being submitted pursuant to GGNS Technical Specification 3.5.1.h as a Special Report.

Energy Industry Identification System (EIIS) codes are identified in the text within brackets !.

ATTACHMENT 1 TO 9310190119 PAGE 1 OF 1

ENTERGY Entergy Operations, Inc.
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C. R. Hutchinson
October 13, 1993 Vice President
Operations
Grand Gulf Nuclear Station
U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Attention: Document Control Desk

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
Reactor Scram Due To Actuation and Injection of
High Pressure Core Spray
LER 93-008-00

GNRO-93/00129

Gentlemen:

Attached is Licensee Event Report (LER) 93-008 which is a final report.

Yours truly,

CRH/RR/
attachment

cc: Mr. R. H. Bernhard (w/a)
Mr. H. W. Keiser (w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
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